



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

5/23/03

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,147	01/16/2002	Mitsuyoshi Ichihashi	Q67100	3694

7590 05/23/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
Suite 800
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
	2871

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/046,147	ICHIHASHI ET AL.
	Examiner	Art Unit
	Thoi V Duong	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.

- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.

- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 16 January 2002.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-20 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> .	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being obvious over JP 2001-303057 (JP'057) in view of JP 2001-159709 (JP'709).

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned

by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

As shown in Drawing 3, JP'057 discloses a method for producing a cholesteric liquid crystal color filter, the method comprising the steps of:

- (a) forming a liquid crystal layer 16 comprising a cholesteric liquid crystal composition that contains at least a liquid crystal compound, a photoreactive chiral dopant, and a polymerization initiator (see Abstract, paragraph 14); and
- (b) forming pixels G, B, R at the liquid crystal layer,
 - wherein the cholesteric liquid crystal composition comprises a nematic liquid crystal compound in an amount of 30 to 98 % by mass relative to the mass of solids of the liquid crystal composition (paragraph 25);
 - wherein the cholesteric liquid crystal composition comprises the photoreactive chiral dopant in an amount of 2 to 30 % by mass relative to the mass of solids of the liquid crystal composition (paragraph 46);
 - wherein the cholesteric liquid crystal composition comprises the polymerization initiator in an amount of 0.1 to 20 % by mass relative to the mass of solids of the liquid crystal composition (paragraph 49);
 - wherein the cholesteric liquid crystal composition comprises a polymerizable monomer in an amount of 0.5 to 50 % by mass relative to the mass of solids of the liquid crystal composition (paragraph 35);

wherein the cholesteric liquid crystal composition comprises a binder resin in an amount of at most 50 % by mass relative to the mass of solids of the liquid crystal composition (paragraph 52);

wherein the binder resin is a binder resin having a carboxyl group at a side chain (paragraph 50);

wherein a surfactant is incorporated in the liquid crystal layer in an amount of 1.5 % by mass (paragraph 80); and

wherein the step (b) comprises the sub-steps of: patterning by image-wise exposure using a first light, to which the photoreactive chiral dopant is highly photosensitive; and fixing a helical structure of the liquid crystal compound to selectively reflect a desired color of light by performing photopolymerization curing using a second light, to which the polymerization initiator is highly photosensitive (paragraphs 19-23), and the photoreactive chiral dopant has a peak photosensitive wavelength at a longer wavelength side relative to a peak photosensitivity wavelength of the polymerization initiator (paragraph 17); and

wherein the step (b) comprises transforming the liquid crystal layer into a liquid crystalline phase (paragraphs 13 and 27).

JP'057 discloses a CLC color filter that is basically the same as that recited in claims 1-15 except for forming partition walls at portions corresponding to a boundary of each of the pixels, by irradiating the portions through a mask with ultraviolet light at a wavelength to which the polymerization initiator is photosensitive before forming the pixels. As shown in Drawings 1 and 2, JP'709 discloses a CLC color filter comprising

pixels 16 having colors R, G, B and partition walls 14A, 14B at portions corresponding to a boundary of each of the pixels, formed by irradiating the portions through a mask 16 with ultraviolet light at a wavelength to which the polymerization initiator is photosensitive before forming the pixels (see Abstract, paragraph 19) so as to obtain a CLC multicolor filter which was highly precise and excellent in permeability and color purity can be simply manufactured, reducing material loss (paragraph 10). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the CLC color filter of JP'057 with the teaching of JP'709 by forming partition walls at portions corresponding to a boundary of each of the pixels, by irradiating the portions through a mask with ultraviolet light at a wavelength to which the polymerization initiator is photosensitive before forming the pixels so as to obtain a high quality display.

Finally, as well known in the art, a surfactant (nonionic, cationic and anionic) is used for reducing the amount of a development residue generated in the manufacture of a color filter (USPN 6,344,300 B1 of Baba et al., col. 1, line 46 through col. 2, line 22). It has been held that a recitation with respect to the manner in which a claimed status is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

3. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being obvious over JP 2001-303057 (JP'057) in view of Ko (Pub. No. US 2002/0085147 A1).

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

As shown in Drawing 3, JP'057 discloses a method for producing a cholesteric liquid crystal color filter, the method comprising the steps of:

(a) forming a liquid crystal layer comprising a cholesteric liquid crystal composition that contains at least a liquid crystal compound, a photoreactive chiral dopant, and a polymerization initiator (paragraph 14);

(b) forming pixels while the liquid crystal layer is in an amorphous solid state or a micro crystalline state (paragraph 27), and

wherein a surfactant is incorporated in the liquid crystal layer in an amount of 1.5 % by mass (paragraph 80).

wherein the step (b) comprises the sub-steps of: patterning by image-wise exposure using a first light, to which the photoreactive chiral dopant is highly photosensitive; and fixing a helical structure of the liquid crystal compound to selectively reflect a desired color of light by performing photopolymerization curing using a second light, to which the polymerization initiator is highly photosensitive (paragraphs 19-23), and

wherein the photoreactive chiral dopant has a peak photosensitive wavelength at a longer wavelength side relative to a peak photosensitivity wavelength of the polymerization initiator (paragraph 17).

JP'057 discloses a CLC color filter that is basically the same as that recited in claims 16-20 except for forming partition walls at portions corresponding to a boundary of each of the pixels, by irradiating the portions through a mask with ultraviolet light at a wavelength to which the polymerization initiator is photosensitive after forming the pixels. As shown in Figs. 5A and 5B, Ko discloses a CLC color filter comprising color filters (pixels) 106a, 106b and 106c, and partition walls 120 as black matrices formed at portions corresponding to a boundary of each of the pixels, by irradiating the portions through a mask 108 with ultraviolet light at a long wavelength (page 3, paragraphs 38 and 39). It is obvious that a polymerization initiator is to be photosensitive to the

wavelength to create these walls. Ko discloses that the partition walls can prevent the mixtures of colors in the boundary regions, thereby clearer images can be displayed (page 3, paragraph 36). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the CLC of JP'057 with the teaching of Ko by forming partition walls at portions corresponding to a boundary of each of the pixels, by irradiating the portions through a mask with ultraviolet light at a wavelength to which the polymerization initiator is photosensitive after forming the pixels so as to obtain clearer images for the display.

Finally, as well known in the art, a surfactant (nonionic, cationic and anionic) is used for reducing the amount of a development residue generated in the manufacture of a color filter (USPN 6,344,300 B1 of Baba et al., col. 1, line 46 through col. 2, line 22). It has been held that a recitation with respect to the manner in which a claimed status is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Application/Control Number: 10/046,147
Art Unit: 2871

Page 9

Thoi Duong

05/17/2003

TOANTON
PRIMARY EXAMINER